ABSTRACT

A method and system are provided for constructing a virtual three-dimensional model of an object using a data processing system, and at least one machine-readable memory accessible to said data processing system. A set of at least two digital three-dimensional frames of portions of the object are obtained from a source, such as a computing system coupled to an optical or laser scanner, CT scanner, Magnetic Resonance Tomography scanner or other source. The at least two frames comprise a set of point coordinates in a three dimensional coordinate system providing differing information of the surface of the object. The frames provide a substantial overlap of the represented portions of the surface of the object, but do not coincide exactly for example due to movement of the scanning device relative to the object between the generation of the frame. Data representing the set of frames are stored in the memory. The data processing system processes the data representing the set of frames with said data processing system so as to register the frames relative to each other to thereby produce a three-dimensional virtual representation of the portion of the surface of the object covered by said set of frames. The registration is performed without using pre-knowledge about the spatial relationship between the frames. The three-dimensional virtual model or representation is substantially consistent with all of the frames.